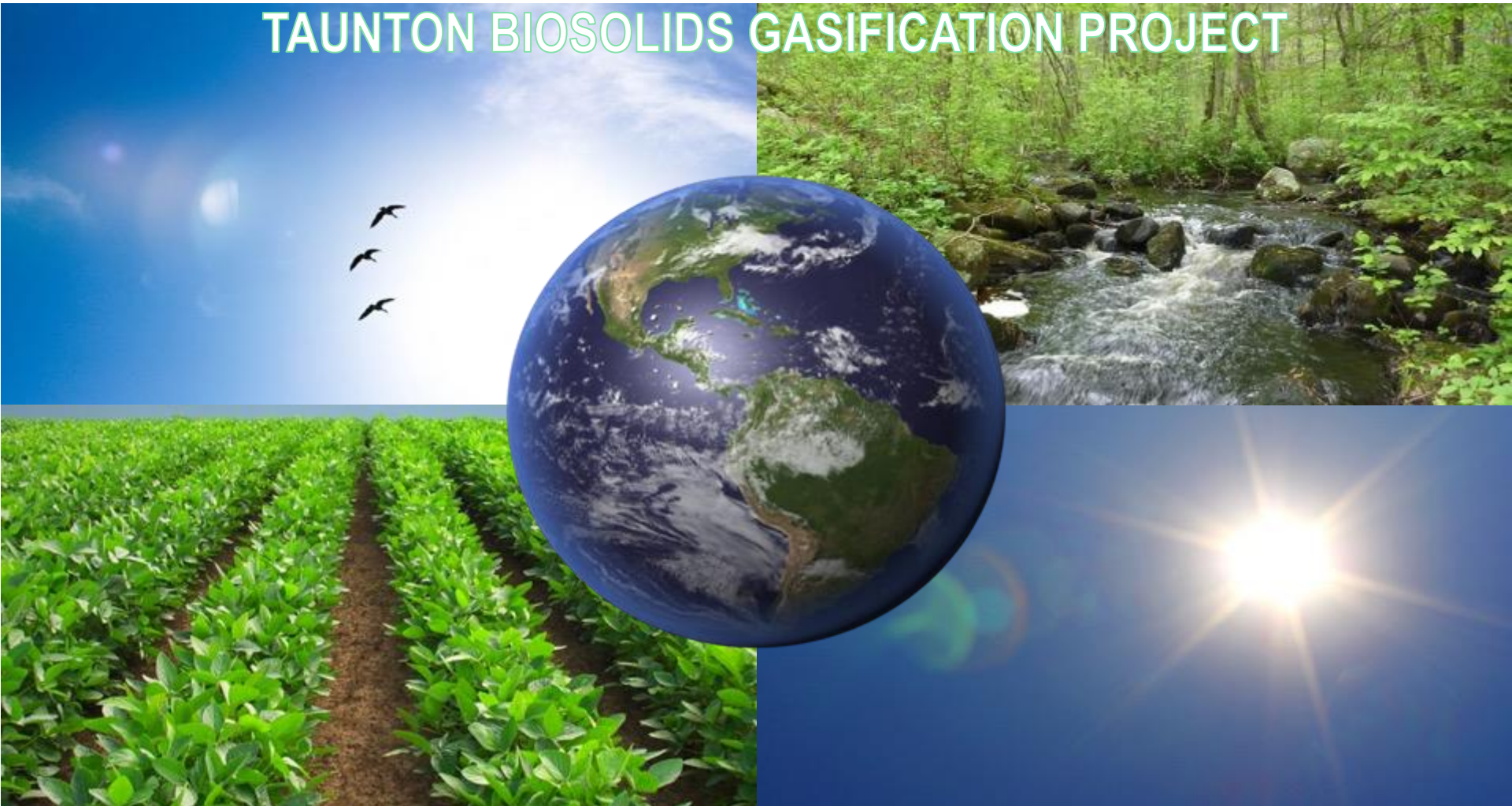




ARIES CLEAN TECHNOLOGIES

TAUNTON BIOSOLIDS GASIFICATION PROJECT



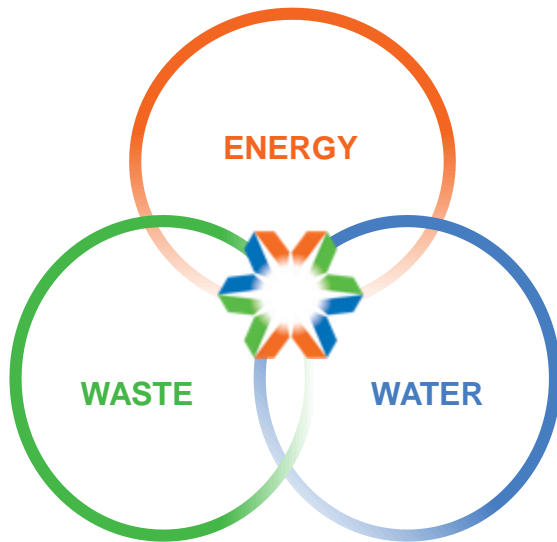
**Presentation to Taunton Area State Legislators
March 10, 2021**



Executive Summary – Aries Biosolids Gasification Project

Aries Clean Technologies

Based in Nashville, Tennessee, **Aries Clean Technologies** is a patent holder, manufacturer and system integrator that develops projects using its **proven, proprietary downdraft and fluidized bed gasification systems for municipal and industrial customers**. Since 2010, Aries has been gasifying materials such as biosolids that would otherwise be landfilled while producing renewable and sustainable energy.



- Closed loop energy neutral system
- 95% volumetric reduction of biosolids
- Sustainable long-term solution
- Reduces land application and incineration
- No odors from facility
- PFAS solution



- Sustainable zero landfill solution
- Carbon neutral to negative
- Reduces biosolids hauling, reduces CO2 emissions
- Gasifier air emissions expected to be lower than existing SSI's in MA



- System produces clean, renewable heat energy from synthesis gas
- System produces a valuable biochar product that replaces coal fly ash in concrete applications

- Facility will be owned/operated by Aries
- Aries has 10+ years of technology development and operating history
- Full-scale commercial facility constructed and operating
- Fluidized bed gasifier -18 months of commercial operation
- Feedstock includes wood waste, biosolids, and agricultural waste
- Small/medium capital requirement that can be project financed
- Robust near-term project pipeline
- Experienced team with an average of 30 years in clean technology and energy



Lebanon, TN

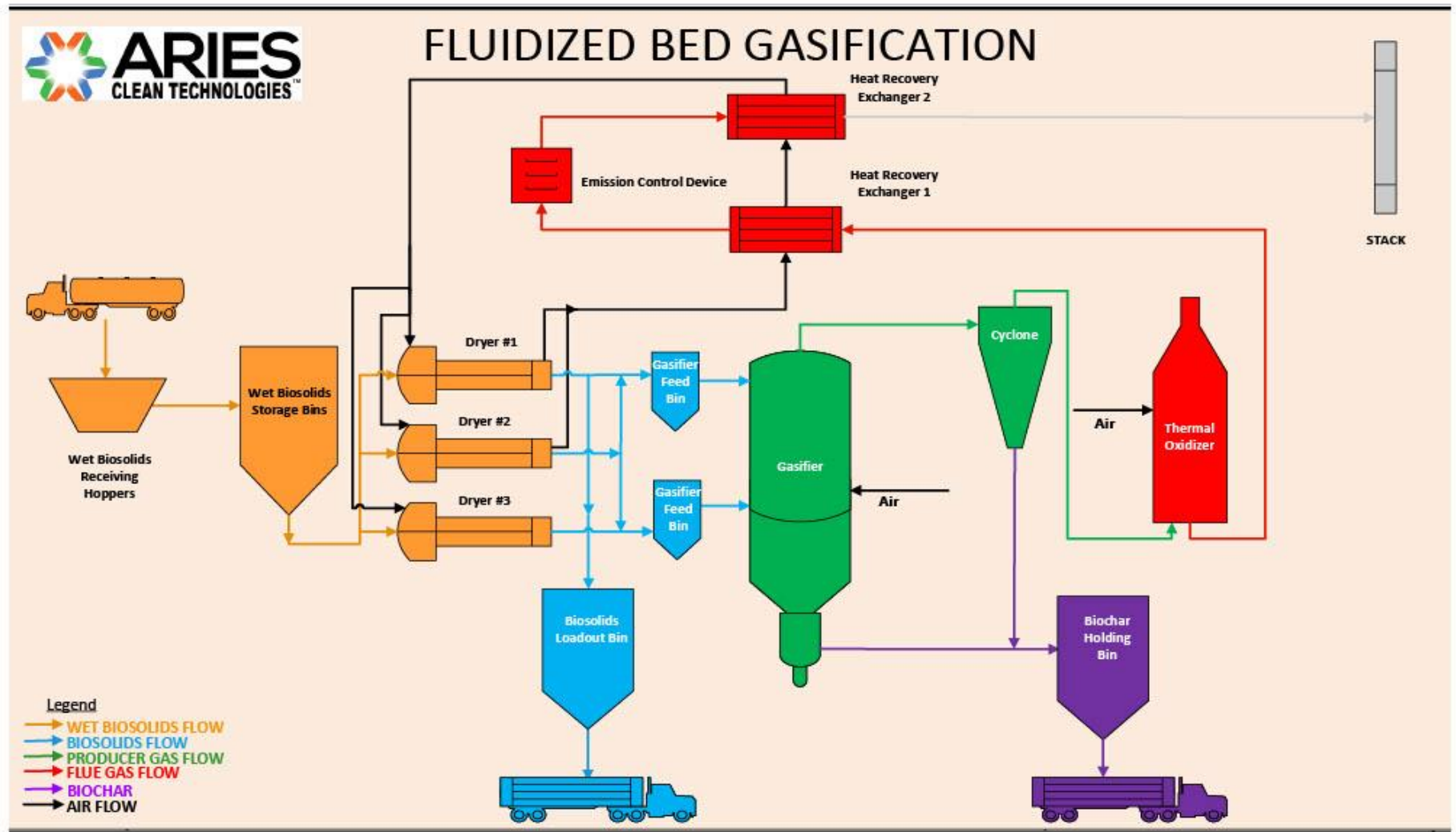


Sanford, FL

Aries Facility- System Description

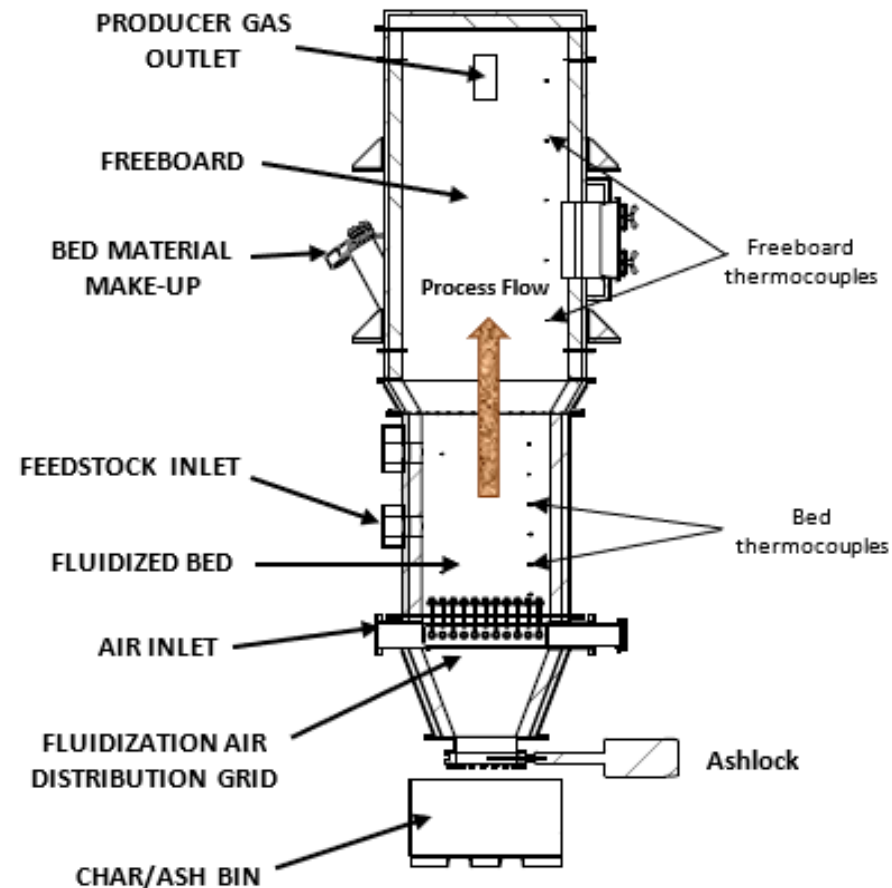
- 470 TPD Throughput
- 3 x 235 TPD Biosolids Dryers
- Dryers produce Class A/Type I Biosolids used as Gasifier Feedstock
- 100 TPD Aries Patented Fluidized Bed Gasifier
- 25 TPD of Biochar Produced
- Heat Recovery
- Air Quality Control Equipment
- Noise and Odor Control Systems

Process Flow Diagram

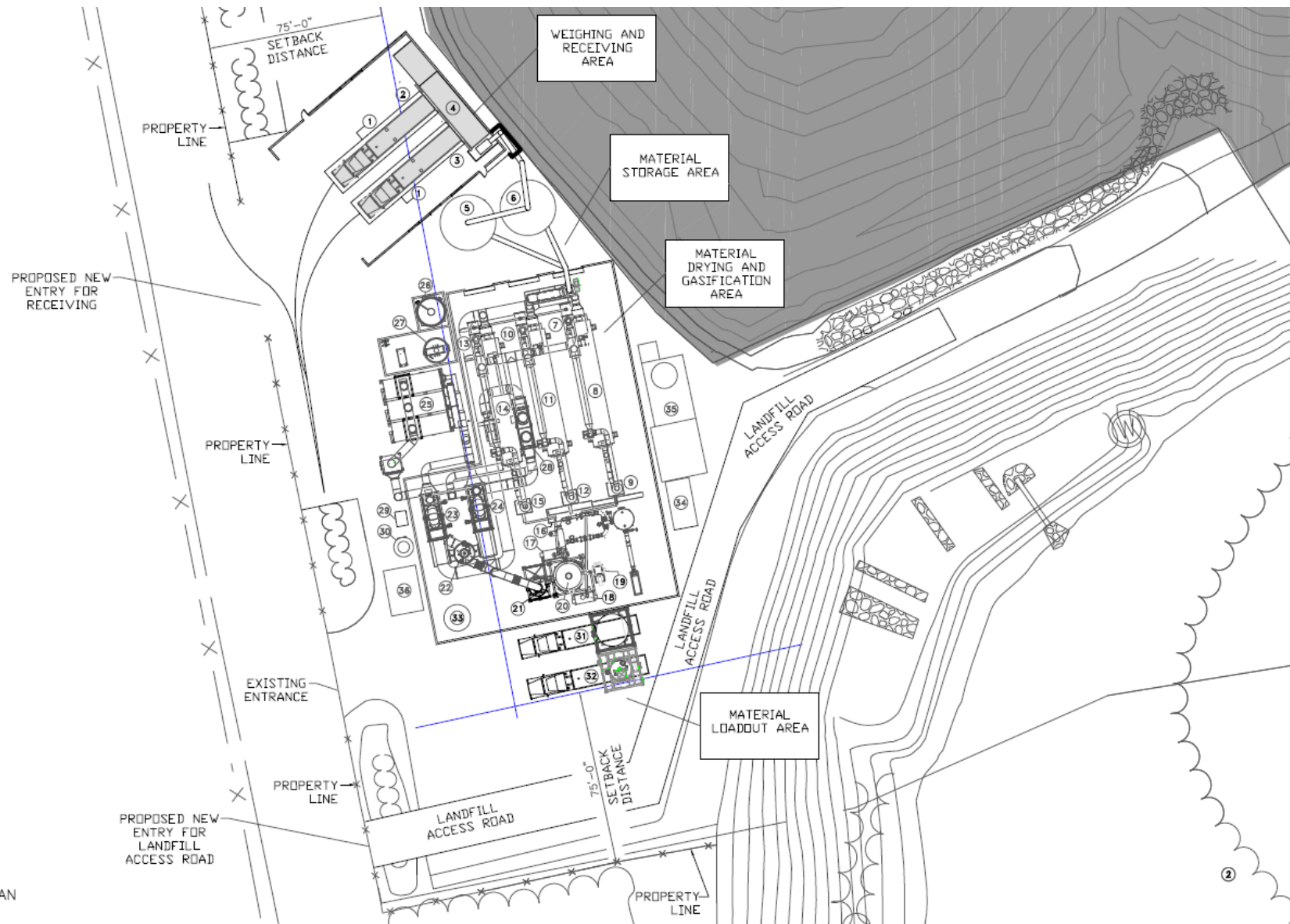


Fluidized Bed Gasification –Cutting Edge Technology

- Conversion of biomass into a synthesis gas (syngas) in an oxygen-starved environment
- Thermo-chemical process
 - Heat generated through chemical reactions of biosolids and air
 - Bed temperature constant at 1,250°F through control of biosolids to air ratio
 - Self sustaining chemical reactions
 - Producer gas is primarily H_2 , CO , CH_4 and CO_2
 - Controlled amount of air enters the gasifier so no combustion occurs in the gasifier- no potential for fires/explosions
 - Process does not require supplemental energy other than startup.



Aries Taunton – Project Site



AN

Aries Taunton Facility Rendering



Aries Taunton Facility Rendering



Aries Taunton Facility Rendering



Aries Project – Environmental Protection Features

- State-of-the-art odor control design
 - Totally enclosed biosolids receiving building under negative air pressure
 - Thermal oxidizer will destroy all VOC's/odor compounds
 - Biosolids delivery vehicles will be watertight and covered
 - No liquid biosolids will be accepted
- State-of-the-art air quality control system
- Highly reduced truck traffic vs. landfill (20 trucks/day)
- No land disposal/no environmental impact on existing landfill
- No water quality impacts
- State-of-the-art noise reduction

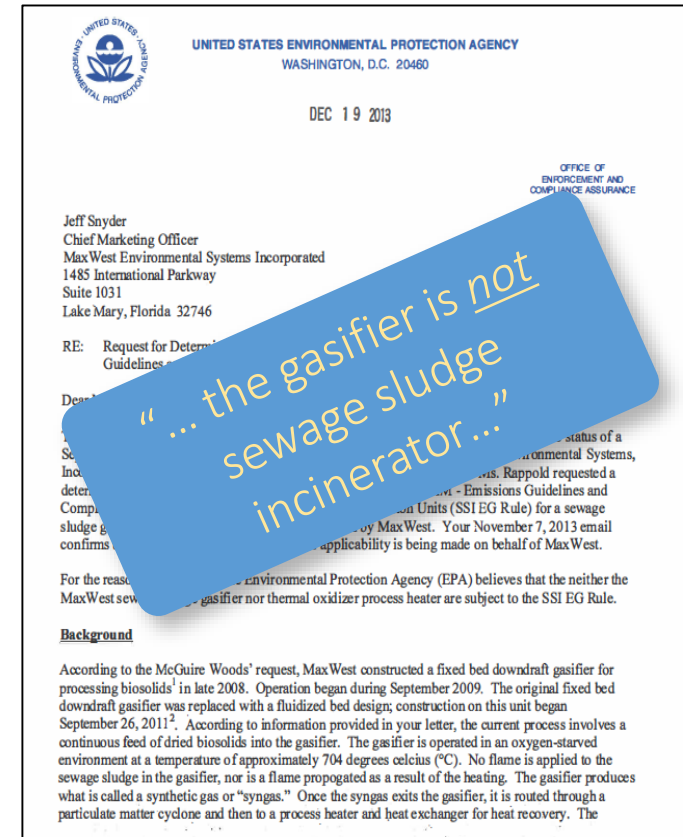
Gasification vs Incineration

Regulatory Treatment

- EPA ruled that the fluidized bed gasifier and thermal oxidizer combination is **NOT** classified as a sewage sludge incinerator
- Gasifiers are not regulated under the SSI rules
- Gasifier does not require supplemental energy other than startup
- NJDEP recently issued air permit for Aries Linden as a gasification facility, not incineration

Edward Messina, Director at the Office of Compliance issued a USEPA letter that determined the following:

“According to the information provided by MaxWest, no flame is applied or propagated in the gasifier and the gasifier prevents combustions by limiting the air-to-sludge ratio such that combustion cannot occur. Therefore, we do not believe that the gasifier is an SSI (sewage sludge incinerator), because it does not combust sewage sludge.”



Aries Project Benefits to Taunton

- \$750,000 upfront payment to City
- \$500,000 sewer I&I upfront payment to City
- \$100,000 annual escalating lease payment
- Annual tip fee revenue share of 3.9%, worth an estimated \$460,000 per year
- Most favored nation biosolids disposal pricing for City saving \$300,000 per year
- Relocation of landfill residential recycling drop-off area at no cost to City
- Productive use of difficult-to-develop site
- Safe/sustainable long-term biosolids solution
- 30 permanent well-paying jobs
- Purchases from local businesses by Aries

Major Project Milestones

- Site Option Agreement Signed December 2020
- Execute Biosolids Supply Agreement – February 2020
- Host Community Agreement Signed February 2020
- MEPA Approval: 9-12 months
- MassDEP Regulatory Permitting: 6-9 months
- Financial Close – Q2 2022
- Construction – Q2/Q3 2022
- Commercial Operations – Q2/Q3 2023

Aries Taunton Permitting Underway

- Executed Site Option and Host Community Agreements with City
- MEPA Process Underway
 - Environmental Notification Form filed
 - Noise study
 - Air modeling
 - Traffic study
 - Public outreach/public comments on project
 - Final Environmental Impact Report will mitigate any potential impacts
- Air, water, solid waste permits obtained after MEPA Process
- Local site plan approval/building permits
- Aries is committed to being a good long-term neighbor in Taunton

THANK YOU

